clude the letters F and R.]

GORDON EZ mentions constructional and electrical sets made in the DDR by Gordon-Apparatebau KG, Schmalkalden/Thüringen between about 1960 to 1972, but without any further details.

HELLER From what I can gather from EZ there was never a MECHANIKUS set in Germany (see 12/321). The tool was called 'Mechanikus' and was included in **HELLER'S STAHLBAU** outfits there. These sets were sold in France under the name **HELLER-MECANICUS** (HELLER-MECHANICUS in 12/321 was an error), and contained the same tool called 'Mécanicus'.

The tool described in OSN, and included in the **MECO** set, was called the 'Constructor' and with its interchangeable heads was more versatile than the 'Mechanikus'.

The period for STAHLBAU is from 1933 to at least 1938 but the French version seems to have been available after WW2 (13/360). MECO dates from about the same time, perhaps from 1934.

HOHA Jeannot listed 2 versions, the first with a hole pitch/diameter of 13.2/4.1, and the second, 13.0/4.6. Both had nickel plated parts and the first at least, rubber Tyres and Pulleys. MCS gives 13.1/4.4, and mentions brightly polished plating with some red and possibly, blue parts. It also mentions the early '30s whereas in EZ a small box is shown among early post-WW2 outfits.

Frank Beadle has some HOHA parts and among them is the 11*5 Flanged Plate (flanged on the long sides) with no holes in the centre 7*3 area, that can be seen in the MCS models. But Frank also has another which, from a photo, seems to be the last 5*5 holes of the 11h long one.

HW Metallbaukasten A photo of a box lid in EZ has METALLBAUKASTEN diagonally across it and the triangular HW logo of Hans Wünsch, the East German toymaker from Niederwiesa/Sachsen. The firm started in 1949 and this was probably one of the early products. The simple Windmill on the lid includes Strips up to about 11h long, a 9h long Flanged Plate, flanged on the long sides, and a 4h Bush Wheel or Wheel Disc.

IMPERATOR See 10/260. EZ gives the Axle diameter as 3.5mm and by scaling, the Strips seem to be about 5mm wide, and the octagonal Hub ¾" A/F.

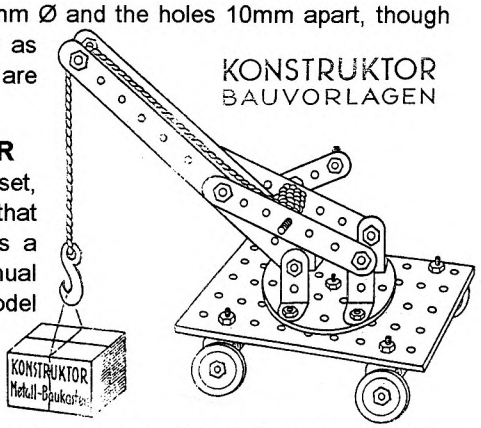
INDUSTRIE EZ shows an open box with the parts in it, similar to the set shown in MCS. The Strips though don't look as narrow as they appear in MCS and based on the 5mm hole, their width scales at ½". The 8-spoked Pulley Wheels are about 30mm diameter. All the parts have a black metallic finish. Two periods are quoted - 1919 to at least 1931, and 1925 to at least 1935.

INGENIEUR This name is listed in EZ but without any details except that it was made by Ihag GmbH of Nürnberg around 1919.

JOLEI This little system from c1950 had only some 12 different parts, all in plain aluminium except for the steel N&B. The holes were 4.4mm Ø, spaced at 11.0mm. EZ has a photo of a backing card with some parts on it - I think I can see 3,4,5,7,9&11h Strips, 1*3*1 & 1*5*1 DAS, an Angle Bracket, and a Screwdriver rather like the MECCANO #36.

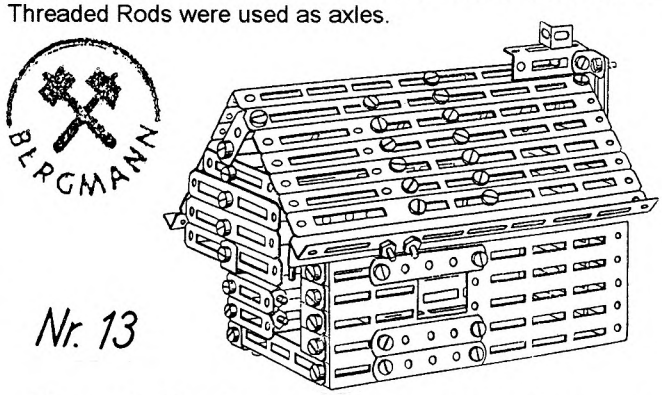
KEIM EZ gives only the maker, Keim & Co., A.G., für Blechindustrie, Nürnberg, and the period, c1923 to c1928. A graphic from 1923 shows panels falling off a skyscraper in a strong wind (or so it seems). Perhaps it was an architectural system.

KINEMA EZ confirms much of what appeared in 12/306. The Tubes are 6mm Ø and the holes 10mm apart, though their size is given as 2mm. The dates are c1946 to 1950.



KONSTRUKTOR An East German set, but apart from that all I have on it is a copy of the manual cover with the model opposite on it.

KONSTRUX A small system of some 30 parts, made in West Berlin by the firm E.P.Damaschke, from about 1946 to 1950. The parts though, painted black, are unusual and, as can be seen in the model below, most have long slots in them with square ends. The holes are 4.1mm Ø and are spaced at multiples of 12mm. Other parts can be seen in a nice, good sized multi-jib Crane shown in EZ, and include DAS, Flanged Plates, small Pulleys, and Discs of several sizes up to about 60mm Ø. The larger Discs have a centre holes, 4 long radial slots, and radial holes between them. These slots are the only ones to have rounded ends. The corners of most parts are slightly chamfered as in the House, but a few on Plates and A/Gs are square - none have the large radius of the 5h Strip in the House. An ordinary Double Bracket is shown in EZ with a similar one alongside except that it has large hexagonal holes in its sides. Its purpose isn't clear but there is a hexagonal section Threaded Coupling that might be about the same size. It looks as if Threaded Rods were used as axles.



The words Konstrux Deuteron appear on the manual cover under the main KONSTRUX name, but what this signifies I don't know. Also in addition to a logo based on the initials EPD of the manufacturer, there's another (above left) with the name Bergmann, and what might be crossed hammers.

MABA EZ has a photo of the #4 Set described in 12/306. The dates given are c1946 to 1950.

MAFELL From EZ. This system was made by Maschinenfabrik Fellbach GmbH, Stuttgart-Fellbach/Württ., around 1930. It consisted of relatively few, large steel parts, including strong wheels with suitable axles. In many ways it was comparable to the GILBERT WHEEL TOY.

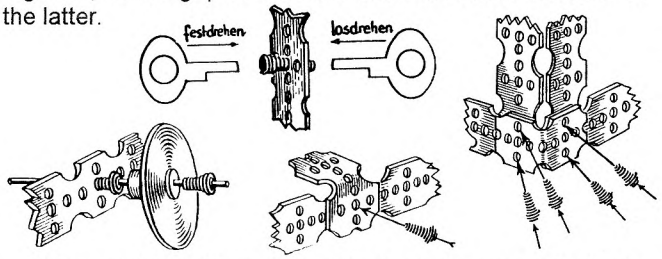
MECANIC/MEKANIK In answer to the point about which came first (13/361), EZ provides the answer. The original name (in 1948) was MECANIC and the original maker, Dörken & Mankel KG, Ennepetal-Voerde/Westfalen. Later (c1959 to c1963) the system was made by Adrian & Rode, Velbert/Rheinland and by that time the name had changed to MEKANIK. Jeannot wrote that the change was made in

GERMAN SYSTEMS Thomas Morzinck has kindly sent more information, as detailed below.

AKRON One or two details about this unusual, small German system were given in 15/412, and the shape of the Strips was shown in 17/476. Thomas has sent photocopies of a manual & a box lid, and a photo of a set. The lid is blue and measures about 6*13½"; it has the name in a yellow panel, and shows 2 boys playing with a Windmill and a Wagon, both similar to models in the manual, and both needing 2 sets to make them. They are shown blue but all the parts are actually black.

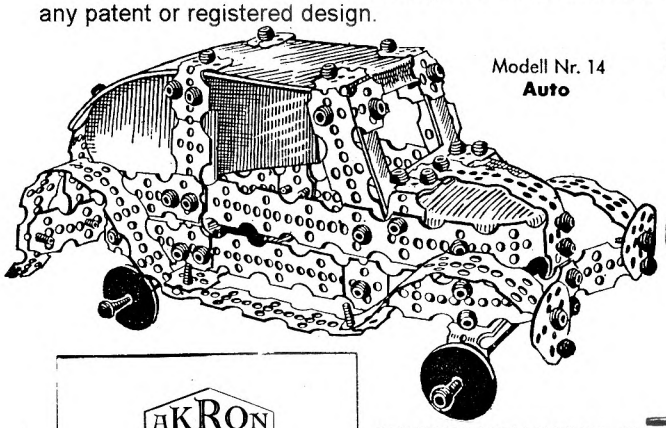
There was only one outfit and only 12 different parts in all. They aren't illustrated separately in the manual but can be seen in the model below and those on the front of this Issue. The set contained: • 6,10,10,6,4 Strips with 2,3, 5,10 & 17 segments. Given the 5mm hole pitch they would be about 15 or 16mm wide, and the longest 340mm overall. The holes look to be between 2½ & 3mm Ø. In the manual's intro much is made of the ease with which the Strips can be used for curved structures, due no doubt to their being made from thin springy steel. • 20 Angle Brackets made from 2 segment Strips. • 2 Wheel Discs of perhaps 25mm Ø, with inner and outer rings of 4 & 8 holes. • 4 Wheels of about the same size; they have bosses with Set Screws and are formed or flanged around the edge, or they might even have a pulley groove. • 2 each of 100 & 140mm Axles; bright and of very small diameter. • 85 Springs and a Key to insert and remove them.

As shown below, the Springs are used to hold the parts together, and to grip the Axles. Hence the small diameter of the latter.



The models, although small of course, are not simple tables and chairs, or other elementary constructions. The Digger and Crane are typical of the 15 models shown that can be made with a single set; and the Windmill is among the 5 that need 2 outfits. A further manual was promised with more models for 1 & 2 sets, and some that would need 3 or more. I can't say that the models look very attractive, but perhaps they would be better in the flesh. The necking in the Strips seems to have no particular purpose, though it would make changing the set of the Angle Brackets, necessary in some models, easier. Card, or similar, panels are shown in some models such as the Crane & the Car below.

Despite the novel method of fixing there is no mention of any patent or registered design.



SUMMARY OF MANUAL •Name: AKRON Stahl-Leichtbau-Kasten aus elastischem Material. •Details of maker: none. •No dates/ref nos. •Page size: 148*106mm deep. •No. of pages: 28 inc covers. •Language: German. •Printing: all B&W with line drgs of models. •No Illustrated Parts. •Page No. of Set Contents: 6 [no PNs]. •Sets covered: 1 or 2 of the only set. •No. of models for 1/2 sets: 15/5. •Name, Model No., Page No. of first & last model for 1/2 sets: 1: Flachwagen,1,7; Raddampfer,15,21. 2: Haus,16, 23; Waggon, 20,27. •Other notes: the printer's name & address, Wilhelm Müller jr, KG., Solingen-Ohligs, is given on the back cover.

HOHA Following on from 15/415 Thomas sent photos of Sets 1, 1a, & 4, and a copy of a manual from the No.4. I've also used a photo of parts in Frank Beadle's collection. The MCS models are all in the manual and the cover is identical too, but the typeface isn't always quite the same, so it isn't from the same printing. It lists the parts for most models but there's no list of all the parts, and no Set Contents. These aren't in MCS either so I'll try to identify the different parts and show the interesting ones as they appear in the models. The list won't be complete because parts are sometimes called by different names in different models, the same name is sometimes used for two parts, and inevitably the parts called up don't always agree with those shown in the model.

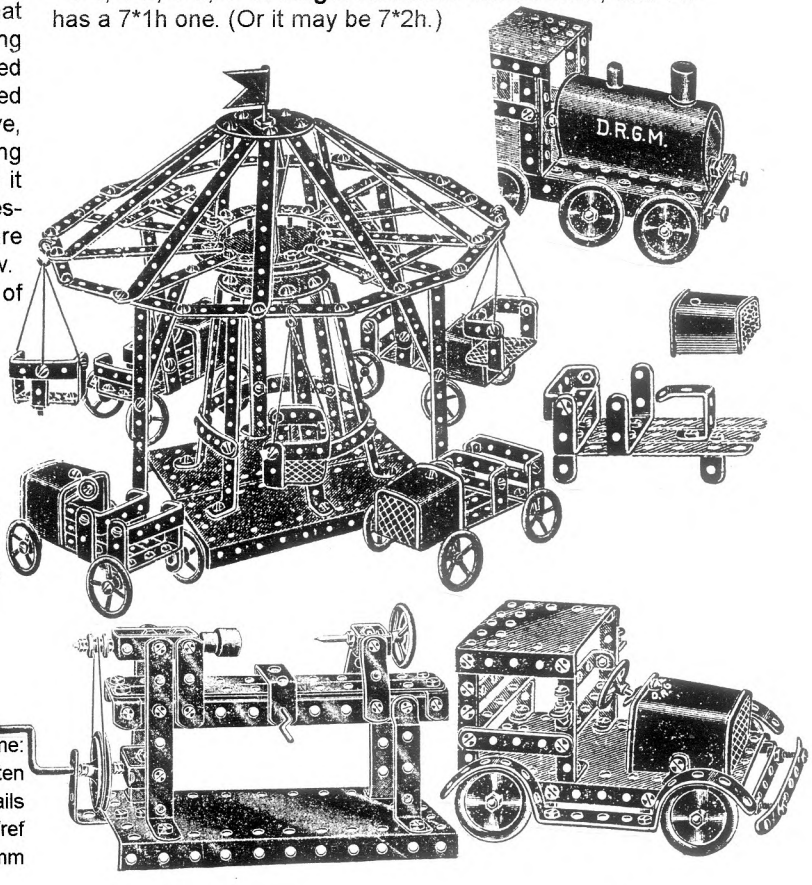
• **Strips** with 11,10,9,7,6,5,4,3,2 holes. The No.4 Set has some 23h Strips in it, but these are not used in any of the models. All have semi-radiused ends, & the ones in Frank's photo scale at about 12mm wide, or a little less. There are no slotted holes in the Strips or in any other parts.

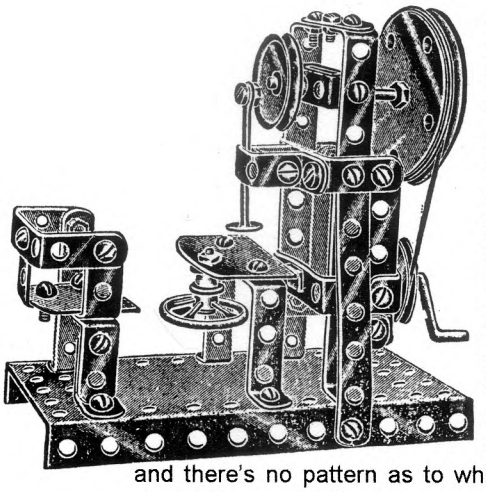
A circular strip can be seen in the Roundabout below but the Parts List calls for 2 of the Large Circular Plates, and one of them could replace the circular strip. (There are several anomalies in this model.)

• As well as 1*1*1,1*3*1,1*5*1,1*9*1h,2*3*2 **DAS**, the 1*5*1 is shown with both lugs at 45°, and the 1*9*1 with 1 lug so.

• The 1*9*1 is also made as a **Reverse Angle Bracket** with 1 lug the other way, and also with that lug bent to only 45°. FB also has a 1*1*1 RAB. All the unusual DAS/RAB so far mentioned are separately identified in the Parts Lists, and were presumably supplied ready formed. In some models though, such as the Lathe below, ordinary Strips are called up for the 4 legs and the 3h Strips supporting the head and tailstock. Similarly for the mudguards of the Auto (below).

• 1*1, 1*2, 1*3, 1*4h **Angle Brackets** can be seen, and FB has a 7*1h one. (Or it may be 7*2h.)





• 4 **Pulleys** are used, one Loose and 3 with boss. Frank's scale at 13mm for the Loose, and 15, 25, & 50mm for the Fast ones. None have holes in their discs but in the manual the large one is sometimes shown with a ring of 5 holes, and the 25mm with one hole to allow an Eccentric Rod to be attached to it. These can be seen in the Press opposite.

• 4-Spoke & solid **Wheels** are shown on the Cars, and there's no pattern as to which sort are fitted to which model throughout the manual, although the solid ones predominate. The No.1 Set has both types and the solid ones are the 25mm Pulleys fitted with black Rubber Rings. However Frank has one made of solid black rubber with a flat, conical centre. It is about 3cm Ø, rather smaller than the 4cm o.d. of the other Wheels. His 50mm Pulley is also fitted with a black rubber ring or tyre. On some models a Steering Wheel or Hand Wheel, as in the Lathe, is fitted.

• **Axles** are usually called Achsen and from the parts nutted to them, are either screwed rods or have threaded ends. Likewise the shaft of the Crank Handle. In a few models Wellen are called up as well as Achsen and perhaps these are smooth Rods.

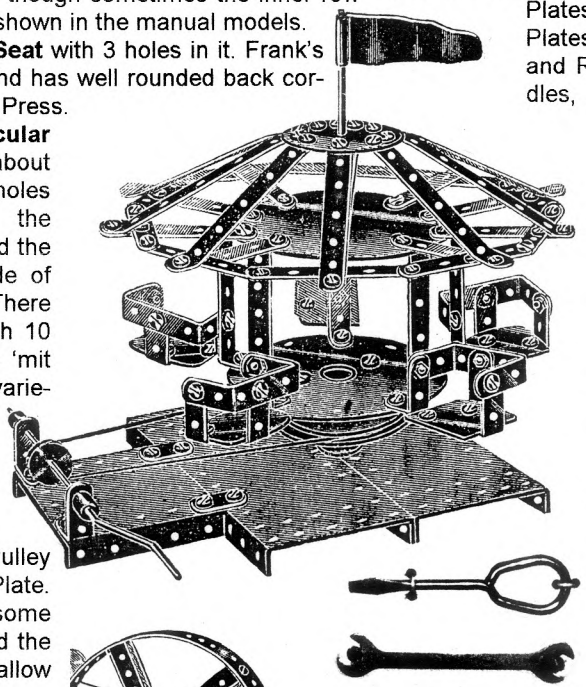
• The 2 sizes of **Flanged Plates** described in OSN 15 are widely used in the models though sometimes the inner row of 5 holes at the end isn't shown in the manual models.

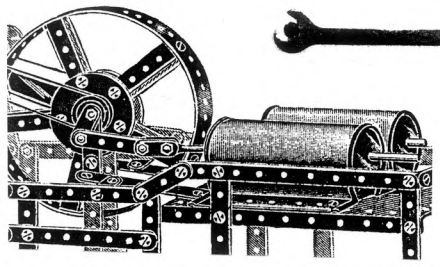
• Another plate is the flat **Seat** with 3 holes in it. Frank's one scales at 35*28mm and has well rounded back corners. It can be seen in the Press.

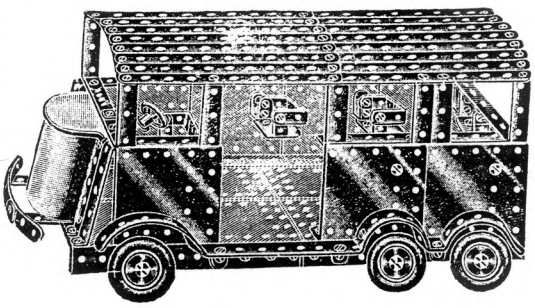
• There are 2 sizes of **Circular Plate**, the smaller being about 50mm Ø with a ring of 5 holes near the outside, and the larger with 10 holes around the edge, plus one either side of the large centre hole. There are also a 50mm one with 10 holes, and a Large one 'mit Kugellager' - the last 3 varieties can be seen in the Merry-go-Round opposite. My dictionary has Kugellager meaning ball bearing, but here it seems to be the Large Pulley below the Large Circular Plate. It's in the No.4 Set & is some 90mm Ø, with a boss, and the holes either side of it that allow it to be bolted to the Plate

• **Special parts**. • A Car Bonnet with Radiator. It looks as if there are 2 sizes, one about 4h long which is usually fixed with an Angle Bracket at the bottom at each side, as in the Auto, and a smaller one, 3h long, shown in the No.0 models and in those on the Roundabout. It is bolted to the Steering Wheel Bracket as shown alongside the Roundabout. • A Loco Boiler with funnel and steam dome, that's shown to the right of the Roundabout. • A Cylinder (a pair under the Merry-go-Round) for a Steam Engine, about 7h long and on a flat base similar to that of the Boiler, and a Piston Rod for it. • A Spindle (in the Lathe) and the Eccentric Rod in the Press. • The Nose on the Bus below, which looks rather like the Boiler/Cylinder but appears to be 5h long.

• **Miscellaneous parts**. • Cheeseheaded Bolts, including some 20 & 25mm long, & hex Nuts. • The Screwdriver & Spanner shown by the Steam Engine, both about 8cm long. • A wire S-Hook some 20mm o/a. • A Collar. • Spring Cord.







Thomas wrote that HOHA parts are wonderfully finished, and Frank's live up to that description. All Frank's parts and those in the Sets are nickel plated.

The outfits mentioned in the manual are Nos.0,1,1a,2,3, & 4. The sizes of their boxes are given as: 20*15*3.5; 21*15*4.5; 21*15*6.5; 30*21*6; & 40*28*6.5cm for both 3 & 4.

The parts in the No.0 models include a Small Flanged Plate, and a Bonnet/Radiator. No.1 has the larger Bonnet, a Steering Wheel, & a Large Flanged Plate. No.1a adds 1 each of the Flanged Plates, 1 Large & 2 Small Circular Plates, & the Loco Boiler. No.2 models are shown apart from those made from Sets 1 & 1a, and don't include any of the extra 1a parts except a Large Flanged and a Large Circular Plate. Above the No.2, the No.3 has 2 Large & 1 Small Flanged Plates, a Large Circular Plate with the Pulley under it, and 2 Small Circular Plates, one with 5 holes & one with 10. Also needed would be 5 Bonnets & 20 Spoked Wheels for the 5 Cars on the Roundabout, & the Bus Nose. The largest No.3 model, a Big Wheel, needs 220 N&B.

The No.4 doesn't follow on from the others and is a Machinery theme set for the Twin-Cylinder Steam Engine and machine tools. The main parts in the models are Flanged Plates, 3 Large & 1 Small, 2 Small Circular Plates, a Large Pulley, the Eccentric Pulley and Rod, 2 Cylinders & Piston Rods, 2 Spindles, and a Handwheel. The Steam Engine needs 120 N&B but the other models only up to 41.

No linking sets are known but in the manual accessory packs of Bolts, Nuts, Rubber Wheels, Pulleys, and other parts are mentioned.

There's no indication of date in the manual and the only sign of the maker is the initials R u H H on the cover. SUMMARY OF MANUAL •Name: Hoha METALL BAUKASTEN. •No details of maker. •No dates/ref nos. •Page size: 147*210mm deep. •No. of pages: 28 inc covers, unnumbered. •Language: German. •Printing: the cover is as in MCS, in blue & red on light fawn; b&w. line drgs of models. •No Illustrated Parts/Set Contents. •Sets covered: 0,1,1+1a,2,3,2+3,4. •No. of models for each set: 6,9,5,3,2,6,8. •Name, Page No. of first/last model for each [no Model Nos.], 0: Handkarre,4; Sackkarre,5. 1: Rollfix,6; Kran,9. 1+1a: Windmühle,10; Kippauto,12. 2: Straßenbahn, 13; Großer Kran,14. 2+3: Flugzeug,26; Autobus,26. 3: Kinder-Karussel,15; Autokarussel für Hand- und Maschinenantrieb,21. 4: Doppelhammer, 22; Transmission,25. •Other notes: details from a photocopy; the printer's name & address, E. Horn & Sohn, Lüdenscheld, is given on p3; the inside front cover & both sides of the back cover are blank.

The No.1 Set is in a green box with the lid nearly covered by a label in shades of red, white & black, showing a boy working on a small Windmill with the Auto shown earlier alongside it. No manual is shown for either. The No.4 is in a black box and has a different label.

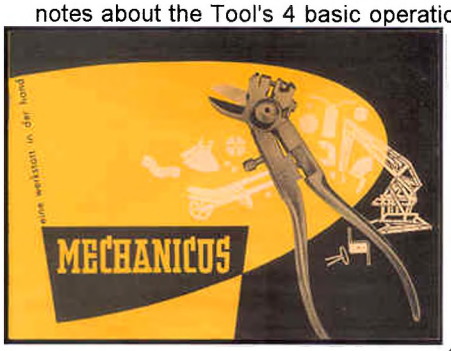
It's blue, red & black, and shows a boy reading a large booklet with Hoha on the front, and the Twin Cylinder Steam Engine on the back cover. The parts are housed in cells formed by card trays, in 2 layers over about ¾ of the area of the No.4.

MECHANICUS What follows is from a German manual, with the name MECHANICUS on the front, which shows the uses of the MECHANICUS Tool (see 12/321) and has illustrations of 11 models. The name HELLER (see 15/415) is not mentioned except that the steel strip supplied is referred to as Heller-Stahlband, and the A/G material as Heller-Winkelstäbe. And despite what was said in OSN 15 a set called MECHANICUS-KASTEN is mentioned, though what it contained isn't clear. The manual is thought to date from 1955 and its cover (below) certainly has a 1950s look to it. Note the second 'C' in the name, instead of a 'K' - was this a postwar fashion? (cf MECANIC, 15/415.)

The Illustrated Parts are shown on the back cover of the manual but the range is much smaller than that for HELLER-MÉCANICUS in MCS, and a few of the parts have different PNs. None of the Gears & Sprockets are listed, nor the Collar and Couplings, and of the Rods, only the 50 & 100mm lengths with threaded ends remain. Instead of the 3 diameters each of Pulleys, 6h Wheel Discs, & Circular Strips, there is one 40mm Pulley, and 2 Discs with a 3mm centre hole (25 & 40mm Ø). The 75mm Tyre is replaced by a 25mm one. Both the A/G & Strip are now only supplied nickel plated, and their maximum lengths are reduced to 50mm (that must mean centimetres) and 10m respectively. The A/G is still available in 3 sizes, with 6, 9, &12mm wide flanges. A 70mm Screwdriver but no Spanner is listed. The N&B are said to be 3mm brass, and still come as 50 Bolts with 60 Nuts, though now in a clear plastic box.

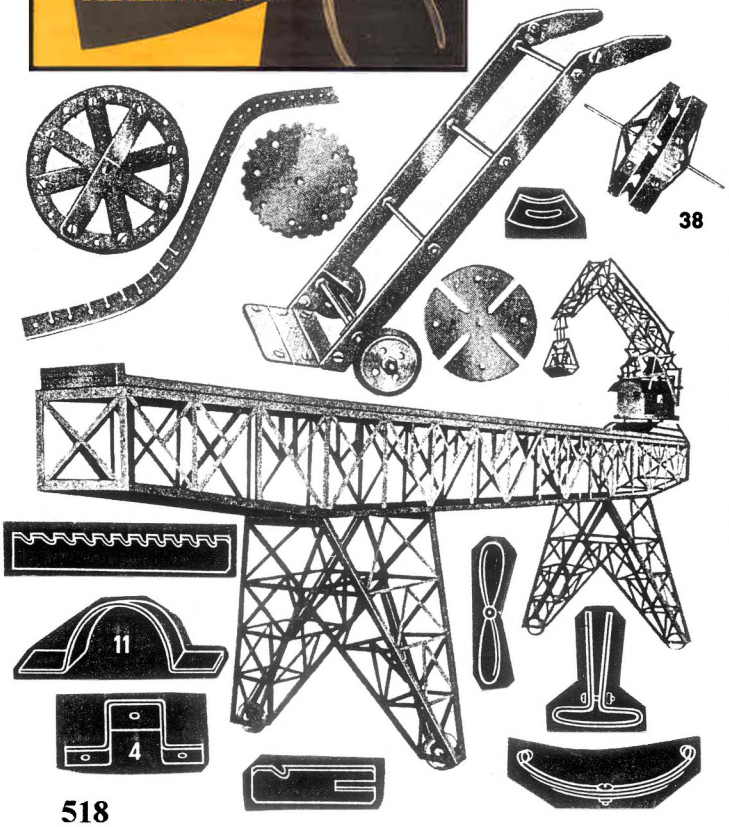
Including covers the manual has 12 pages. 208* 150mm, and the yellow & black cover is shown below. After notes about the Tool's 4 basic operations (cutting, bending, curving, & punching a hole), 40 particular constructions are illustrated, and then there are photos of 11 models, with Parts Lists for the first 7. The first is the Sackkarren, Nr.40, and the last a large Gantry & Grabbing Crane. Both are shown in the previous column, with some of the constructions around them. No.38 is a fabricated Pulley that can be made in any required diameter. The other models include several that are in MCS, among them the Low Table with flower pots on it - the illustration is identical except that the plants (cacti) are different.

There is no maker's name or address in this manual, only a PR 'Vordr. Nr.74' on the back cover. The East German town of Schmalkalden is mentioned in the presumably postwar manual referred to in 13/360.



Nr. 40 **Sackkarren**

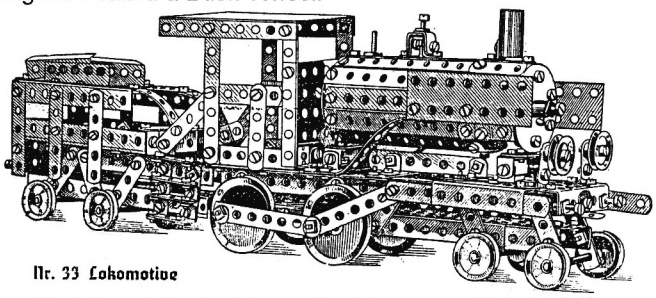
Erforderliches Material:
1,35 m Stahlband
10 Stck. Schrauben
34 „ Muttern
2 „ Rollen Nr. 9/25 mm
4 „ Wellen Nr. 14/50 mm
1 „ Welle Nr. 14/100 mm



MINIATUR Thomas added (to 17/468) that the back cover of the manual is blank, and the covers are made from strong grey paper, like the early STABIL manuals. Also the parts in the early (1915) No.21 Set are of varying quality and their finish ranges from bad to adequate.

ZICK-ZACK This is about the later version, as shown in 15/420 and MCS, and the new information comes from copies of a manual (dated by its owner as 1948) and a box lid. The manual has models for Sets 1-4, and there are small photos of those sets, and also of 3 larger ones, S, SO, & L for Spezial-, Sonder-, & Luxus-Ausführung (Special, Super, Luxe Outfits).

The models contain some parts not mentioned in OSN 15: • 6,8,18h Strips. • 18h A/G (all the A/Gs have round holes in both flanges). • 3 Plates listed as 7h, 5h, & 2h gedreht. The 7h & 5h are probably 2 holes wide (see the smoke deflector in the Loco below), but I can't spot the 2h 'twisted' part. • 2 other sizes of Pulley, the largest some 50mm Ø with one hole in the face, and used as the driving wheels of the Loco. • A wire S shaped Hook is shown in several models but isn't listed. • 12 Windmühlenflügel are called up for 2 models but I can't spot them in either. • The 6h Disc noted in OSN 15 is probably only about 50mm o.d. with the holes on a pcd of 39mm. It also has a boss, and so might be called a Bush Wheel.



Nr. 33 Lokomotive

The size of the box for each set is given: Nos.1-4 are all 27*20*2.5cm; S & SO have 2 layers and are 31*24*4 & 41*32*4cm; L is in a 47*35*6cm plywood box with 3 layers and a hinged lid. As far as can be seen there are no new parts in the 3 largest sets. Each set has a different label on the lid, and each of the several that can be seen clearly has KONSTRUKTIONS BAUKASTEN on it in large letters, and ZICK-ZACK much less prominently displayed. The copy of the lid is from the S outfit and shows an elaborate montage in black, browns & orange, with a boy playing with a Tracked Crane in the foreground, an engineer looking at a drawing in front of a furnace behind that, and in the distance a real crane and smoking factory chimneys. Curiously the model Crane is from the No.4 Set, and is so labelled.

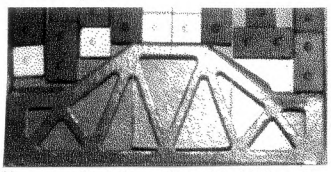
The manual is about A5 size and as already mentioned, covers Sets 1-4. In the intro it is said that a shortage of paper prevents more models being shown, and that there is a Nr.2 manual which shows models for Sets 5 & 6, the only allusion to these sets. The models shown in OSN 15 are from the No.3 outfit and as would be expected those for the No.4 are larger and a little more complicated mechanically,

Corrections • On the lid of the MORECRAFT No.4 Set (19/537) the MORECRAFT/POWER/*Equipped* group of words are at bottom right, not bottom left as stated. Thanks to Don Redmond for pointing this out. • On KON. SHKOL'NIK in 18/501, '7 & 11h Strips' in the 4th line of the 5th para should read '7 & 9h Strips'.

ITEMS FROM LETTERS

1. From Thomas Morzinck. • A photo from Tobias Mey of the lid of a No.1 **Kosmos MASCHINEN** Outfit. It's in full colour and shows a boy using a real bench drill that is of a similar type to the model shown in 20/586. The drill is blue and a couple of parts alongside the box look blue too. The wording along the bottom of the lid is: KOSMOS-BAUKASTEN MASCHINENBAU. Also in the photo is the manual, in portrait format, cream with the same picture as on the lid, but quite small and in black.

2. From Don Redmond. • Some details of the **MODERN-MORECRAFT No.4** box described in 19/537. The box is 2¾" deep with both the top (lid) and bottom based on a wooden frame 13⅞*11*1⅜". [The lid sits on top of the bottom, located by an inner liner, and this gives a clear space above the inner tray, where a Motor could have sat, of 2¼" at most.] On the bottom of the box is $4.89 in pencil.
• On the **ELETTRO BRAL** Rhumkorff Apparatus (19/532), Heinrich Daniel Ruhmkorff (correct spelling) 1803-77, invented the induction coil in 1855, and it was called by his name, the Ruhmkorff Coil, in the 19th century.
• A letter from Kendrick Bisset in the July 1997 issue of the *S.Cal. Club Newsletter* compares the Richter metal Arch Bridge Parts with those produced by Gilbert for use with **MECCANO-BRIK**. (He had bought the toy division of the US branch of Richter's company in 1919.) The Arches are supported by the same type of U-Strip but their bracing is simplified with no vertical members. (But in ads & manuals the Richter pattern is shown.) In size they are the same height, 2", but the Gilbert parts are 6" long against 6.12", and 2.21" wide against 2.35". The Richter parts are painted a dark blue-grey and the Gilbert ones red. [See also the notes on the Richter parts in 19/555. The Arches and Roadway in a #000 MECCANO-BRIK Set are made of orange cardboard and the Arch is humped with diagonal bracing. In the photo below right, the metal U-Strip may be visible behind the card humped Arch, and on the left an oblique view of the Gilbert metal variety.]



• On **STRUCTO** (see 15/424) one Spider (Bush) Wheel has a flat front face and another has a boss on it protruding ⅛". The groove on the Crank Handle to hand is 'barely a scratch'. The pitch of the Sprocket Chain is about 8mm, perhaps 3 links to the inch.
• On **bolt heads** (20/585), 'Allen' is the name of the hexagonal socket in the head, not the head itself. There are other sockets of course, the PHILLIPS cross type for example, and square Robertson sockets which were patented in, and are unique to Canada.
• On the **POW'R HOUSE Ferris Wheel** (20/587), the radial Arms are indeed a rounded channel section, with 2 long tabs at one end which are bent out at right angles to attach to the Rim Segments where they join each other. The Rims have a channel or groove at one side, evidently for a drive belt. Also the hole for the Axle in the Side Supports is at least ¼" Ø and so presumably the Hub and Axle correspond. [The Axle can be seen more clearly in the original of the illustration in OSN 20 & could well be ¼" Ø.]

3. From Werner Sticht. • On the yellow parts in Germany, see 20/571, some of the **original MÄRKLIN parts** were yellow. Pl.18 in *Bauklötze Staunen* shows a 1935 outfit and the 25mm Pulleys, Bush Wheel, and 38mm Flanged & Grooved Pulleys are yellow. In the late 1930s such parts were made of aluminium due to material shortages and were unpainted. A set with such parts can be seen in *Eisenzeit*, Pl.36.
• On the **Lilienthal patent** (20/571), although it was in the name of Otto Lilienthal, the aviation pioneer, in reality his brother Gustav was the inventor of the system. Otto's name was used because Gustav, who had also invented ANKER blocks, had lost all his money in November 1987 as the result of a lawsuit with Richter.
• Of one 'imitator', Hornby, in his Life Story (see 20/571), wrote, 'One of the earliest of these systems consisted essentially of bars of wood perforated at regular intervals with holes, and capable of being fastened together in various positions by metal pins passed through these holes. By means of this system it was possible to build a variety of houses and other fixed structures, but it was impossible to construct engineering models or mechanisms that worked. No matter how the parts were joined to one another, the result in every case was a fixed position - there was no means of producing movement. The opening words of the patent specification of this system read:- "The subject of the invention is a toy building set, by means of which structures can be put up closely resembling real structures put up by carpenters . . . ." This phrase places it beyond all possible doubt that the object of this system was top produce fixed structures based on the principles of carpentering. Meccano, on the other hand, is designed to produce working structures built on the principles of engineering.'

The patent referred to is 153854 of 1903 by Walter Walther (see 13/348) and the opening phrase quoted is a direct translation of the original German. It is now known for sure that Walter was the son of Franz, the originator of STABIL. Hornby's application for a German patent to cover his 1901 invention was not successful. [I understand that the papers that might have explained why were destroyed long ago, but I hope to include more on early patents in the next Issue. Why did Hornby give so much space to Walter's patented system? And was it ever produced?]

4. From Jeannot Buteux/Constructorama. • Some details of a **YUNYI [YOUNÏ] KONSTRUKTOR** set like the one described in 20/567, but from 1994. The nickel plating in it is very bright but flakes off in the fingers. The abbreviation 'F-ka' stands for Fabrika (фабрика), meaning factory.
• **OS names** not yet mentioned in OSN: ARMA (Czech, 1960, green Wheels); BOB (German); CONSTRUCTO (Belgian, c1948); IDÉAL MÉCANIQUE; KÖSTER (from 1951, a theme set to make trains in various colours); LA CONSTRUCTION MÉTALLIQUE; M.C.D. (Dutch); MECCA-MINI; MULTI-MAKE (French, from c1910); LES NACELLES VOLANTES (French); N.S.V. (Dutch); TECNOR (French)
• On the date of **HOHA** (18/517), a set is known from 1950.
• In a known **KONSTRUKTOR-MEKHANIK** set like the one in 18/566, the Axles are 4.0mm Ø and the Bolts are 6,8,10 & 15mm u/h. [See also 20/566].
• **MECHANICUS** (see 18/518) was sold in Holland under the name MECHANIKUS STAALKNUTSELDOOS (an original brochure is known).
• The Patent described in 18/521 does indeed correspond to **FANTASIE 'R'**. Fig.10 on p11 of the Manual is identical to Fig.5 of the Patent, and one manual models is marked G.F.N. 1932. (G.F.N. = Gebr. Fleischmann / Nürnberg)
• On **GEOBRA** (19/522), there is also a larger outfit to make a Crane of the same type but bigger. Such a set is known from 1970.
• At the time of writing an **OS Exhibition** is being held at Euro Tecnica (at the Old Customs House, Hergersberg) near the Belgian/German border (Bullange/Losheim). On view, over 70 different systems which belonged to the late Dr Griebel, with sets and many models. The exhibition may have closed by the time you read this, so phone beforehand

HOHA ***Baukästen*** says that HOHA was made by R & H Hohage of Lüdenscheid from 1935 to 1954, and it is known for having some of the shiniest nickel parts you'll ever see. Incomplete notes on the parts & sets were given in 18/516 and though they included full details of the manual shown here in Fig.6, nothing on set contents was available at the time. Now Urs Flammer has kindly sent a PDF about HOHA (much of it thanks to Albrecht Heinisch) which includes them (Fig.10), taken from what was probably the last HOHA manual (Fig.8). For this account I've also drawn on numerous Ebay photos to try to place the various lid labels, manuals, etc in date order, and to note changes to the parts & sets over time. This wasn't very successful with no dates and too many anomalies, but it is hoped that others will correct and add to the broad outline which follows.

Examples of the 4 lids & 4 manual covers known are shown in Figs.1-4 & 5-8 respectively, in both cases in their possible date order. Reference should be made to OSN 18 for the description of parts not given here.

HISTORY As can be seen from Fig.10 right there were ultimately 6 sets. In many cases the Set No. is shown on a small label in the top right corner of the lid. The sets were not progressive, but, from the manual models, the 1a was intended to be an add-on to Set 1, and models for smaller sets can often be made from a larger one. The only obvious difference in the parts in the sets seen are the types of Wheel included.

Fig.1 sets are thought to be older than the others, and all of the 7 sets seen are either a Set 1 or 1A. None of the outfits had a manual but as with most, perhaps all, of the sets over the years, there was a selection of models that could be made with the set printed inside the lid. A Set 1 lid has 7 models and all but one are in the OSN 18 manual. It was later of course with models for all 6 sets but conceivably there was an earlier version of it for the Fig.1 outfits. 2 of the 7 sets seen have 4-spoke Wheels, the others have the Wheel right. It looks to be an aluminium casting and is about the same diameter as the 4-spoke type.

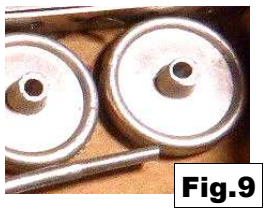


Fig.9

Fig.2 & 3 sets seem to complement each other in that only Sets 0-1 with the Fig.2 lid have been seen, and only Sets 2 & 3 with the Fig.3 type. This may be because too few examples of each are to hand, or perhaps Sets 0-1 continued with the Fig.2 lid after Sets 2-3 had been introduced with a new lid. Sets 0-1 had the Fig.5 manual but presumably an earlier edition to suit the sets

Fig.1

Fig.5

Fig.2

Fig.6

Fig.3

Fig.7

Fig.4

Fig.8

INHALTSVERZEICHNIS der „Hoha"-Metallbaukästen (Einzelteile)

Fig.10

Nr.	Ersatz-Teil Bezeichnung:	Stück in 0	Stück in 1	Stück in 1a	Stück in 2	Stück in 3	Stück in 4
1	Große Grundplatte	—	1	1	3	4	10
2	Kleine Grundplatte	1	1	1	3	3	2
3	Zylinder	—	—	—	—	—	2
4	Antriebsscheibe ∅ 95 mm	—	—	—	—	—	2
5	Antriebsscheibe ∅ 52 mm	—	—	—	—	2	2
6	Antriebsscheibe ∅ 27 mm	—	1	7	6	6	21
7	Antriebsscheibe aus Aluminium	—	—	1	2	2	10
8	Steuerrad mit Stift	—	—	—	—	—	1
9	Sitzplatte	3	—	—	3	10	2
10	Spiralfeder für Antrieb	—	—	—	—	2	10
11	Aluminium-Rolle	—	1	1	2	4	2
12	Mont. Auto (Gesamtteile)	—	—	—	—	47	—
13							
14	Welle 12 cm	—	—	—	—	—	4
15	Welle 28 cm	—	—	—	—	1	1
16	Welle 20 cm	—	—	—	—	—	1
17	Welle 5,5 cm	2	—	—	2	8	—
18	Welle 8 cm	2	3	3	6	12	8
19	Kolbenstange	—	—	—	—	—	2
20	11-Loch-Stange	4	12	12	24	36	36
21	10-Loch-Stange	—	—	—	2	10	4
22	9-Loch-Stange	—	—	—	2	10	4
23	7-Loch-Stange	4	8	8	24	32	32
24	6-Loch-Stange	—	—	—	10	10	10
25	5-Loch-Stange	12	16	16	32	32	32
26	4-Loch-Stange	5	4	10	10	18	15
27	3-Loch-Stange	8	—	10	10	16	15
28	2-Loch-Stange	—	—	10	10	10	15
29	10-Loch-Winkel, einseitig	—	—	—	—	—	2
30	7-Loch-Winkel, normal	3	9	9	18	20	5
31	7-Loch-Winkel, tief	3	—	—	3	20	5
32	5-Loch-Winkel, normal	6	2	8	8	24	18
33	2-Loch-Winkel	4	8	8	16	24	36
34	4-Loch-Winkel	9	—	2	10	10	15
35	3-Loch-Winkel	9	—	1	10	27	15
36	5-Loch-Winkel, einseitig	—	—	—	—	—	15
37	7-Loch-Winkel, Z-Form	—	—	—	—	—	4
38	3-Loch-U-Winkel	—	—	—	—	—	5
39	3-Loch-Winkel, flach	2	—	—	2	2	2
40	Nippel mit Schraube	—	—	—	2	16	20
41	Schraube M 4x25	—	8	5	8	14	12
42	Schrauben M 4x6	30	60	60	100	230	300
43	Muttern	30	60	60	100	230	300
44	Dampfkessel	—	—	1	1	1	—
45	Große Motorhaube	—	1	—	1	1	—
46	Kleine Motorhaube	1	—	—	1	4	—
47	Motorhaubenhalter	1	—	—	1	4	—
48	10-Loch-Scheibe, groß	—	—	—	1	1	—
49	10-Loch-Scheibe, klein	—	—	3	3	4	5
50	10-Loch-Scheibe mit Lager und Bageliterad	—	—	—	—	1	—
51							
52	Schraubenschlüssel	1	1	1	2	2	2
53	Kurbelstange	—	1	1	2	2	2
54	Steuerrad	—	1	—	1	1	—
55	Steuerstange	—	1	—	1	1	—
56	Schraubenzieher	1	1	1	2	2	2
57	3-Loch-Platte (s. Nr. 9)	(3)	—	—	(3)	(10)	(2)
58	11-Loch-Winkel	—	—	—	—	5	—
59	11-Loch-Stütze	—	—	5	5	5	—
60	11-Loch-Dachsparren	—	—	—	—	10	—
61	6-Loch-Winkel, normal	—	—	—	2	2	—
62	3-Lochwinkel	—	—	—	—	—	4
63	Vollgummi-Räder	4	—	—	4	20	—
64	Profil-Reifen	—	6	—	6	5	—
65	Befestigungsklammern	1	3	2	15	29	32
66	7-Loch-Stützen	—	—	—	—	5	—
67	7-Loch-Dachsparren	—	—	—	—	10	—
68	S-Haken	—	1	1	2	1	—
69	Steuerhalter (2-Loch-Winkel)	—	1	—	1	1	—
70	9-Loch-Winkel (2 Löcher einseitig)	—	—	—	—	5	—
		146	211	248	479	1014	1044

then current. Sets 2 & 3 had the smaller Fig.6 manual: it has 12 A6 landscape pages including covers, with 20 models for Sets 0-3, plus 2 for Nr.4, a set said to be in preparation. All are in the OSN 18 manual except a Set 4 Drilling Machine which differs from the OSN 18 version. (The OSN 18 manual of course has many more models, 29 for Sets 0-3, plus 8 for Set 4, and unlike the Fig.6 manual has a parts list for each model.)

Fig.10a

The Fig.6 item has been described as a brochure rather than a manual, but if it was intended as a manual I suppose it might have been from soon after WW2 when paper was in short supply. Either way it is from a time just before the Nr.4 was available. All the sets have the 4-Spoke Wheel except one No.1 which has Pulleys with Tyre, as left.

Fig.4 sets. 13 in all have been seen of Sets 0-4. On 0-1a lids there is no METALL-BAU-KASTEN panel at the bottom of the fIG.4 label, and on some lids the model on the back of the manual is the Twin Cylinder Steam Engine model, the end of which was shown in OSN 18.

Nearly all the 8 sets which should have Wheels have Pulleys with Tyres, but one has the Rubber Wheels left that are listed in Fig.10. 6 of the sets have the Fig.5 manual, 2 have a Fig.7 one, and one of the latter has the Rubber Wheels. So it seems that Tyres for Pulleys were introduced at or near the start of this period, the manual cover was changed during it, and Rubber Wheels introduced. Nothing else is known of the Fig.7 manual but given that the models in the Fig.5 manual are the same as those in the Fig.8 (see below), it would be surprising if they were any different in the Fig.7.

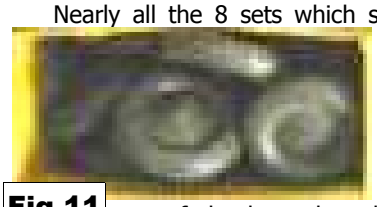


Fig.11

The Fig.8 manual. No set with this manual has been seen but it is interesting in that although the models in it are the same as in the Fig.5 manual in OSN 18, the cover shows coloured parts, and some of them, those lying on the table & in the Crane, have slotted holes (as left), both unknown HOHA features. The Windmill on the cover is a Fig.5 manual model but not the Crane. So, artistic licence or was there a final phase yet to be discovered, or perhaps only planned. It's likely that there were never any coloured parts because it is said in the Manual that the parts are nickelled with a high gloss.

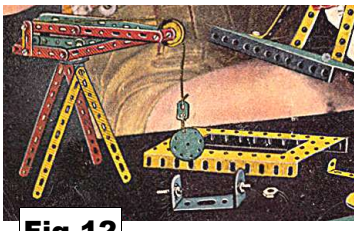


Fig.12

Sets 0-4 are advertised in the Manual with a photo of each and the box sizes & total numbers of parts. These are given below because they differ significantly from those in the Fig.5 & 6 manuals: the first figures, the box size &, in curly brackets, the number of parts, are from the Fig.5-6 manuals; the second set are from the Fig.8 manual.

Set 0: 20*15*3.5cm {not given}; 23.5*18*3 {146}.
Set 1: 21*15*4.5 {170}; 28.5*18.5*6 {211}.
Set 1a: 21*15*6.5 {224}; 28.5*18.5*6 {247};
Set 2; 30*21*6 {402}; 32.5*25*6.5 {479, 2 layers}.
Set 3; 40*28*6.5 {826}; 41*31*6.5 {1015, 2 layers}.
Set 4: 40*28*6.5 (only in Fig.5) {not given}; 41*31*6.5 {1043, 2 layers}.

The PARTS Below my names for them & notes on variations. Many were described in OSN 18. A dagger after a part's name indicates a doubt about its correct name; a double dagger that it has not been seen even in a photo.

- **1, 2**. **Flanged Plates**, Large, Small.
- **3**. **Cylinder**.
- **4-6**. **Pulleys** with boss, 95, 52, 27mm.
- **7**. **Pulley**, Aluminium ‡.
- **8**. **Steering Wheel with Pin †‡**, but perhaps the Hand Wheel shown in the Lathe & Press in OSN 18.
- **9**. **Seat Plate**, with 3 holes.
- **10**. **Spring Cord ‡**.
- **11**. **Roller** (right), an aluminium spacer with a thin flange on each end.

Fig.13

- **12**. **Auto Parts**. Probably the total number of Auto related parts in the Set, but the quantities don't seem to add up.
- **14-18**. **Shafts**. Most are Screwed Rods or have threaded ends. In Albrecht's set the centre of the latter is 3.5mm Ø, appreciably smaller than the holes. Smooth Axles are seen in some later sets.
- **19**. **Piston Rod**.
- **20-28**. **Strips**. 12mm wide, .6-.8mm thick. Holes: 4.2mm Ø at 13.1mm pitch.
- **29**. **SAS**, 9*1h.
- **30**. **DAS**, 1*5*1h.
- **31**. **DAS**, 2*3*2h.
- **32**. **DAS**, 1*3*1h.
- **33**. **A/B**.
- **34**. **SAS †**, 3*1h.
- **35**. **A/B**, 1*2h.
- **36**. **SAS**, 4*1h.
- **37**. **Reversed Angle Strip**, 1*5*1h with angled lugs.
- **38**. **D/B**.
- **39**. Possibly a 3h **Corner Bracket †‡**.
- **40**. **Collar**.
- **41,42**. **Bolts** M4x25,6mm. Cheese & Roundheaded respectively in Albrecht's set.
- **43**. **Nuts**. Square or Hexagnal, about 7.5mm A/F.
- **44**. **Steam Boiler**. The funnel & dome simply push in.
- **45,46**. **Bonnets**, Large, Small, with **Radiator Plates**. The latter slide in and usually have an impressed pattern of small hexagons, but some are plain.
- **47**. **Mounting Bracket** for #46.
- **48,49**. **Discs**, 10h with boss, 94,52mm Ø.
- **50**. **Ball Bearing**. A 10h 94mm Disc with no boss and a ball bearing unit bolted to it (right).

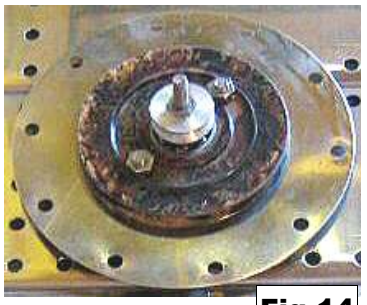


Fig.14

- **52**. **Spanner**.
- **53**. **Crank Handle**.
- **54**. **Steering Wheel**, 4-spoke (Fig.13).
- **55**. Possibly a **Steering Column ‡**.
- **56**. **Screwdriver**.
- **57**. As #9.
- **58**. **DAS**, 1*9*1h with 1 lug angled.
- **59**. **DAS**, 1*9*1h with angled lugs.
- **60**. **Rev. Angle Strip**, 1*9*1h with angled lugs.
- **61**. **DAS ‡**, probably 1*4*1h.
- **62**. **3h Bracket †‡**.
- **63**. **Rubber Wheel** (Fig.11). This part has been seen in only one or two Fig.4 type sets. It came after the 4-Spoke Wheel, the solid, cast Fig.9 part, & Pulley with Tyre.
- **64**. **Tyre** for #6.
- **65**. **Clip ‡**, perhaps a Bifurcated Paper Clip.
- **66**. **DAS**, 1*5*1h with angled lugs.
- **67**. **Rev. Angle Strip**, 1*5*1h with angled lugs.
- **68**. **S-Hook** (Fig.13).
- **69**. **Steering Wheel Bracket** (2h Obtuse A/B).
- **70**. **SAS**, 5*2h.

Other Parts. **1) Eccentric Wheel**, a 27mm pulley with an off-centre face hole, as in the Press in OSN 18.

Fig.15

2) One lot of parts includes **A/Bs** identical to #33 except that they have a 6mm slot in each arm, and a **Disc Wheel** (Fig.15 right), 32.4mm Ø with 9.4mm Ø circular cutouts.

3) 52mm Discs. 5h versions of #49, with & without boss, have been seen in a number of sets, particularly the without boss version.